

A New *Polythrix* From Central America (Lepidoptera: Hesperiiidae)

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Abstract. *Polythrix kanshul* is described as a new species. It differs from its nearest relative, *P. metallescens* in several details of wing pattern and in many genitalic characters. These two species, along with *P. eudoxus*, form a monophyletic lineage defined by the morphology of the uncus. *Polythrix kanshul* is known from Palenque, Chiapas, Mexico and Bayano, Panama.

The genus *Polythrix* is distributed from the southern border of the United States south to Argentina with the bulk of the 15 recognized species found in Central America and northern South America (Evans 1952). Freeman (1979) recorded six species in Mexico and provided a key to their identification while Llorente, et al, (1990) listed seven species. While identifying material from southern Mexico, I realized that a new species of *Polythrix* was present in the sample. My purpose here is to describe it and to document its relationship with other species in the genus.

Polythrix kanshul, Shuey New species

Diagnosis of male: The wing pattern (Figures 1-4) of *P. kanshul* is very similar to *P. metallescens* (Mabille) (Figures 5-8) with the following exceptions: the ground color of *P. kanshul* is darker brown and the dorsal metallic blue-green body and hindwing scaling is brighter than in *P. metallescens*; *P. kanshul* has four apical spots, *P. metallescens* has three; and ventrally, the narrow white discal band on the hindwing is shorter in *P. kanshul*, extending only between veins 2A and Cu_2 while in *P. metallescens* this band extends between veins 2A and $Sc+R_1$. A color photograph of *P. metallescens* can be found in Lewis (1973).

Description of male: Figures 1-4. Forewing: ground color brown; fringes brown; metallic green hairs cover the basal one-third dorsally — one-sixth ventrally; four apical spots present; three hyaline spots - one located in the distal portion of the discal cell and one each in the mid-points of cells M3 and Cu_1 ; costal fold present; ventral hair-tuft covers the origin of vein Cu_2 ; ventral cells Cu_2 and 2A gray. Hindwing: ground color brown; fringes white; vein 2A extended, forming a blunt tail; metallic green hairs and scales cover the inner two-thirds dorsally — one-third ventrally extending downward at the tails; ventral surfaces with a narrow white discal band between veins 2A and Cu_2 . Head, palpi, and

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Figures 1-4. *Polythrix kanshul*; 1, dorsal view, holotype male, Palenque, Mexico; 2, ventral view of previous specimen; 3, paratype male, Bayano, Panama; 4, ventral view of previous specimen.
 Figures 5-8. *Polythrix metallescens*; 5, dorsal view; male, Madden Forest, Panama, 3 Aug. 1969; 6, ventral view of previous specimen; 7, female, Cayuga, Guatemala, May; 8, ventral view of previous specimen.

thorax ground color brown but densely covered with metallic green hairs and scales.

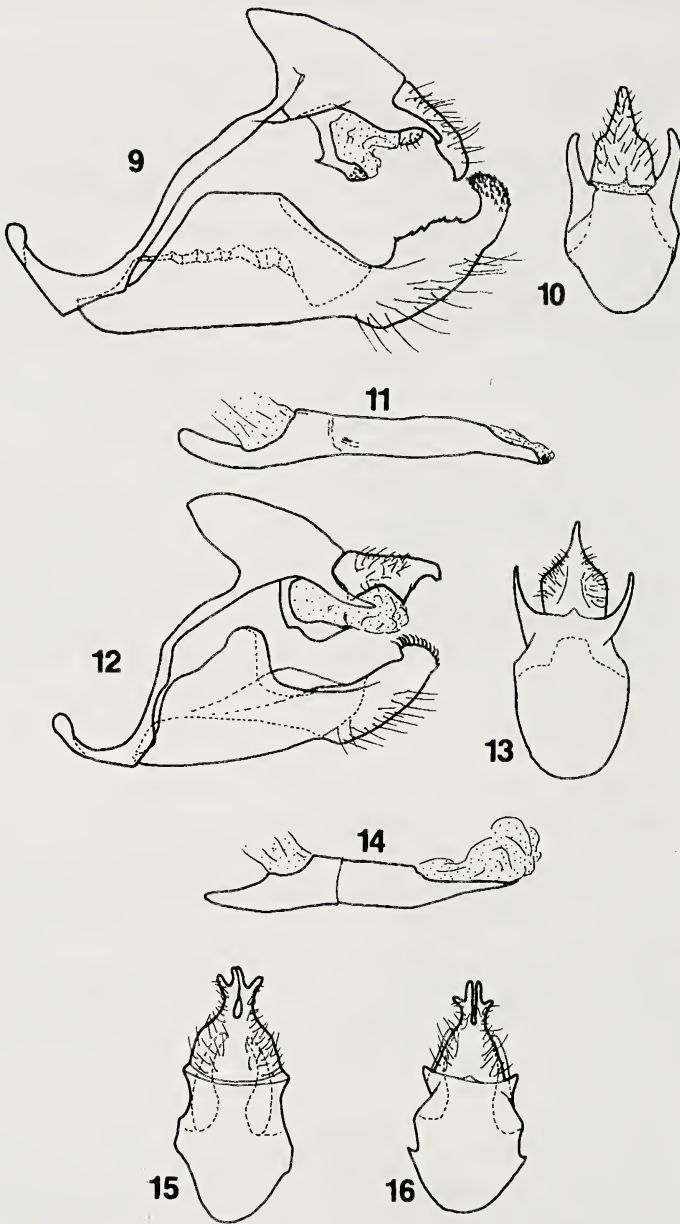
Male (Figure 9) valvae elongated into a curved, heavily toothed, blunt projection; upper edge of sacculus (sensu Klots, 1970) heavily sclerotized and wrinkled. Uncus (Figures 9-10) fused into a single posterior projection with lateral socii originating from tegumen on both sides. Aedeagus (Figure 11) with anterior extension beyond membranous ejaculatory duct; posterior cornuti plate-like and hinged ventrally.

Female: Unknown. If the pattern of sexual dimorphism is similar to that of *P. metallescens* (Figures 7-8), the female of *P. kanshul* should be similar to the male, but with longer tails and duller green iridescence.

Types: Holotype - Mexico, Chiapas, Ruinas Palenque, approx 17°30' X 92°05', 21-VIII-1987, J.A. Shuey, collector (Carnegie Museum of Natural History). Paratypes - one specimen with the same locality data as the holotype, collected 20-VIII-1987 (J. A. Shuey collection): One specimen, Panama, Panama, Bayano, 12-X-1974, G.B. Small, collector (United States National Museum of Natural History).

Etymology: The specific name reflects the long and splendid history of the type locality, Palenque, and is a latinization of Kan-Xul (kan-shóol). Kan-Xul was the second son of Pacal to assume the rulership of Palenque, and along with his father and brother, was responsible for much of the magnificent architecture of this site. Kan-Xul ruled Palenque at its zenith, but was captured in warfare with neighboring Tonina, and presumably sacrificed there (Schele and Miller, 1986). An accession portrait of Kan-Xul, in stucco relief, still survives within the palace at Palenque. Kan xul is Mayan for "magnificent animal". My name for this insect is meant as a double tribute; first to the Maya, past and present, whose world view and beliefs continue to shape much of Central America; second, to the insect, which is truly 'kan xul'.

Habitat and Distribution: The habitat at Palenque is mature to young "selva alta perennifolia" (perennial high rainforest) (Miranda and Gyves, 1979). The entire forest in the vicinity of the ruins has presumably regrown since approximately 1000 BP. The classic Maya developed the entire area around the core of the ruins, and little or no forest probably occurred in the immediate vicinity at the time of active occupation (Andrews, 1975). Portions of the present day forest represent the original old-growth forest that blanketed the site after Palenque was abandoned, but much of the surrounding forest represents more recent regrowth that followed the clearing of the ruins during the late 1800's to the present. The holotype was captured along a well worn trail through a part of the rainforest that may represent part of the older growth. It was perched on the underside of a leaf when captured. The other Palenque specimen was collected at a nearby motel which is surrounded by young rainforest regrowth. This specimen was collected at night on a white sheet illuminated by ultraviolet light. It was probably dislodged from its



Figures 9 - 11. *Polythrix kanshul*, holotype male genitalia; 9, lateral view; 10, dorsal view of uncus and tegumen; 11, lateral view of aedeagus.

Figures 12 - 14. *Polythrix metallescens*, male genitalia; 12, lateral view; 13, dorsal view of uncus and tegumen; 14, lateral view of aedeagus.

Figures 15 - 16. *Polythrix genitalia*, uncus and tegumen, dorsal view; 15, *P. caunus*, R. Yanacani, E. Bolivia, alt. 600m., March 1915; 16, *P. auginus*, Cayuga, Guatemala, August.

nocturnal perch during an intense evening rainstorm, and subsequently attracted to the light.

The perennial high rainforest habitat is widespread throughout the lowlands of Central America, and *P. kanshul* is probably found in all of the intervening countries between Chiapas and Panama. Perennial high rainforest in Mexico extends northward into Tabasco and in fragmented form into Veracruz, and of course, southward throughout much of South America; *P. kanshul* should occupy a more extensive area than is presently known. Like all rainforest life, this species is certainly extirpated from the portions of its original range which have been converted for agricultural uses.

Discussion: *Polythrix kanshul* and *P. metallescens* are each other's closest known relatives. They differ from all other *Polythrix* species in the distinctive configuration of the hyaline forewing spots and in the relatively large amount of metallic over-scaling on the wings and body. In other species of *Polythrix*, the forewing spots are fairly broad and overlap. These overlapping spots, in conjunction with the prominent apical spots and hindwing tails, give the genus *Polythrix* its distinctive appearance. In *P. kanshul* and *P. metallescens* these spots are taller than they are wide, and generally do not overlap.

Despite their similarities, I would argue that the divergence of *P. kanshul* and *P. metallescens* from a common ancestor is not recent. While the genitalia of these two species differ most conspicuously in the configuration of the valvae, the details of almost every other structure differ also (Figures 9 - 14). The accumulation of so many structural differences indicates that these taxa have followed different evolutionary paths for a long time. The broad geographic overlap of these two taxa also supports this contention. *Polythrix metallescens* occurs from Belize south through Central America and into at least amazonian Brazil. *Polythrix kanshul* is known from Panama and Chiapas Mexico, indicating a broad overlap in the known range of these two species. Recent differentiates are generally allopatric.

The fused uncus is apparently an apomorphy which defines a lineage composed of three species, *P. metallescens*, *P. kanshul*, and *P. eudoxus* (Stoll). My inclusion of *P. eudoxus* in this lineage is somewhat tentative, but Evans' (1952) caricature of the genitalia of this species suggests that it too has the fused uncus and lateral socii. All other species of *Polythrix* have a more typical Pyrginae uncus composed of two lateral prongs. However, some of these species may form a transition series to this apomorphic character state; *P. caunus* (Herrich-Schäffer) and *P. auginus* (Hewitson) for example, have the basal portion of the uncus elongated, with the two prongs reduced to small hooks on the distal end (Figures 15 and 16), and the beginnings of enlarged lateral socii. The homology of this transitional state is tentative, but its configuration is certainly suggestive.

The addition of *P. kanshul* to Mexico's fauna raises the number of

Polythrix species known from that country to eight. It seems likely that *P. metallescens* also will be found to occur in southern Mexico. This skipper is known from Belize and Guatemala, and may eventually be found in the dense rainforests of the Lacadón Forest and Montes Azules Biosphere Reserve of eastern Chiapas.

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